

FIG-3

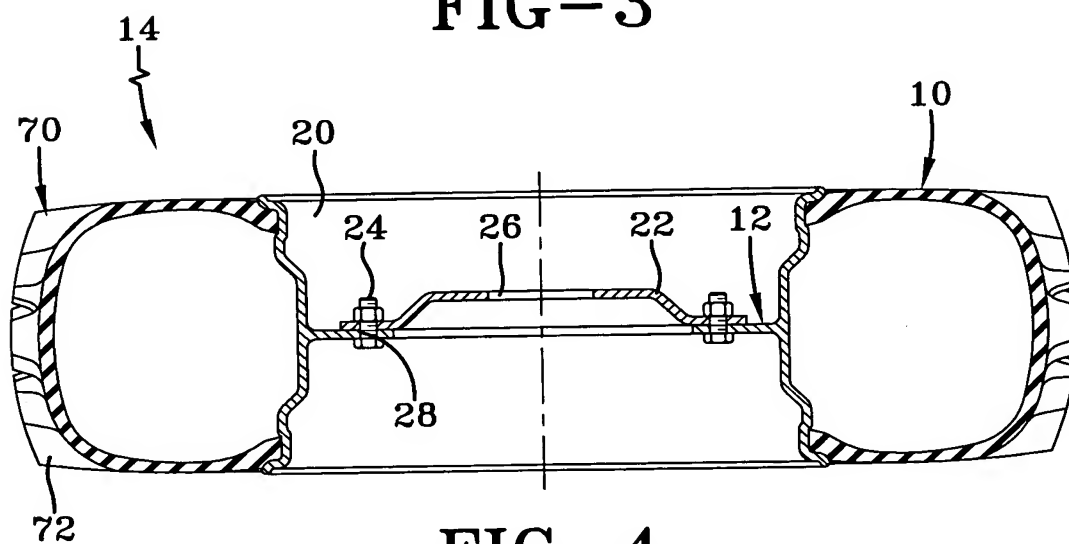


FIG-4

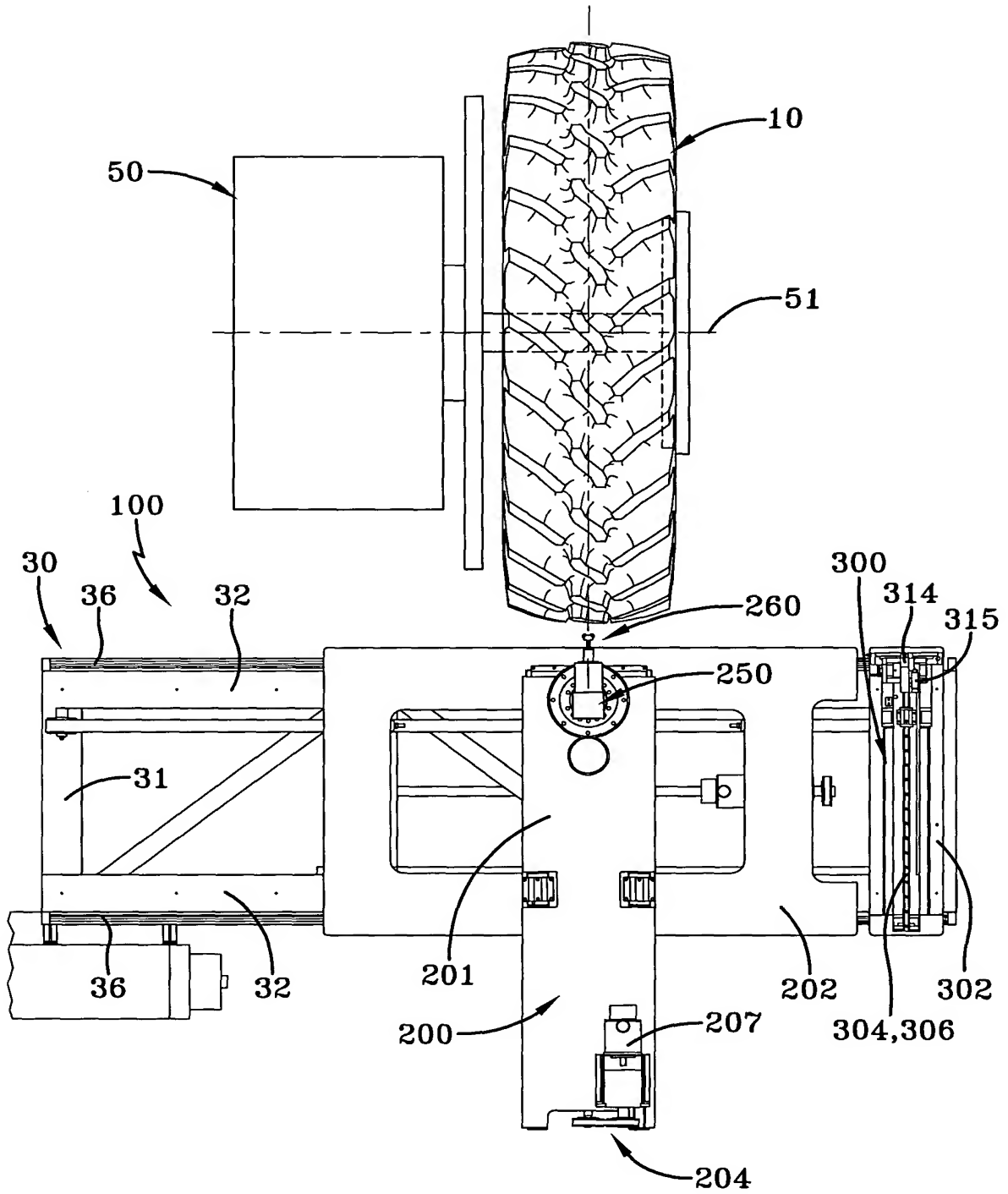


FIG-5

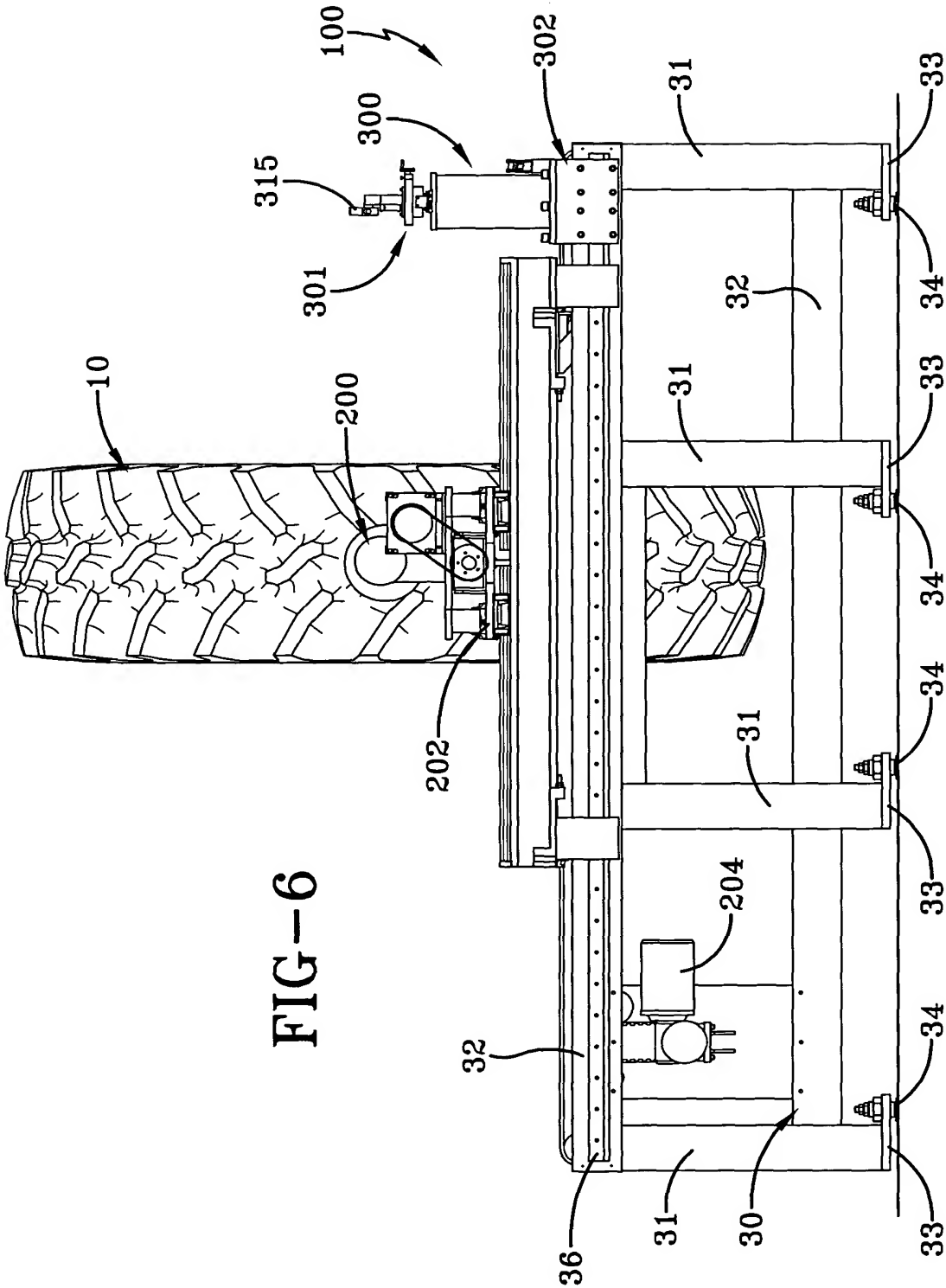


FIG-6

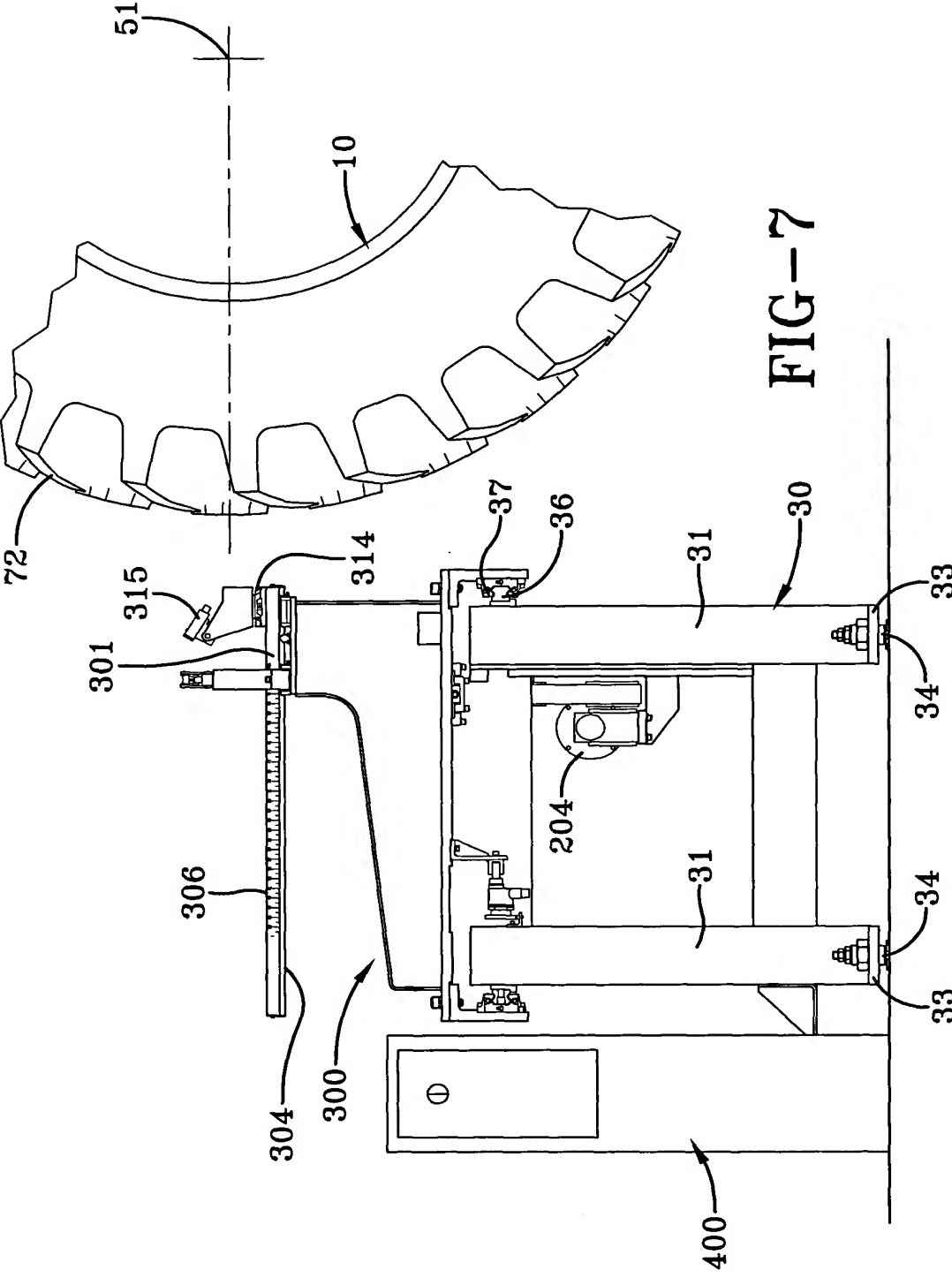
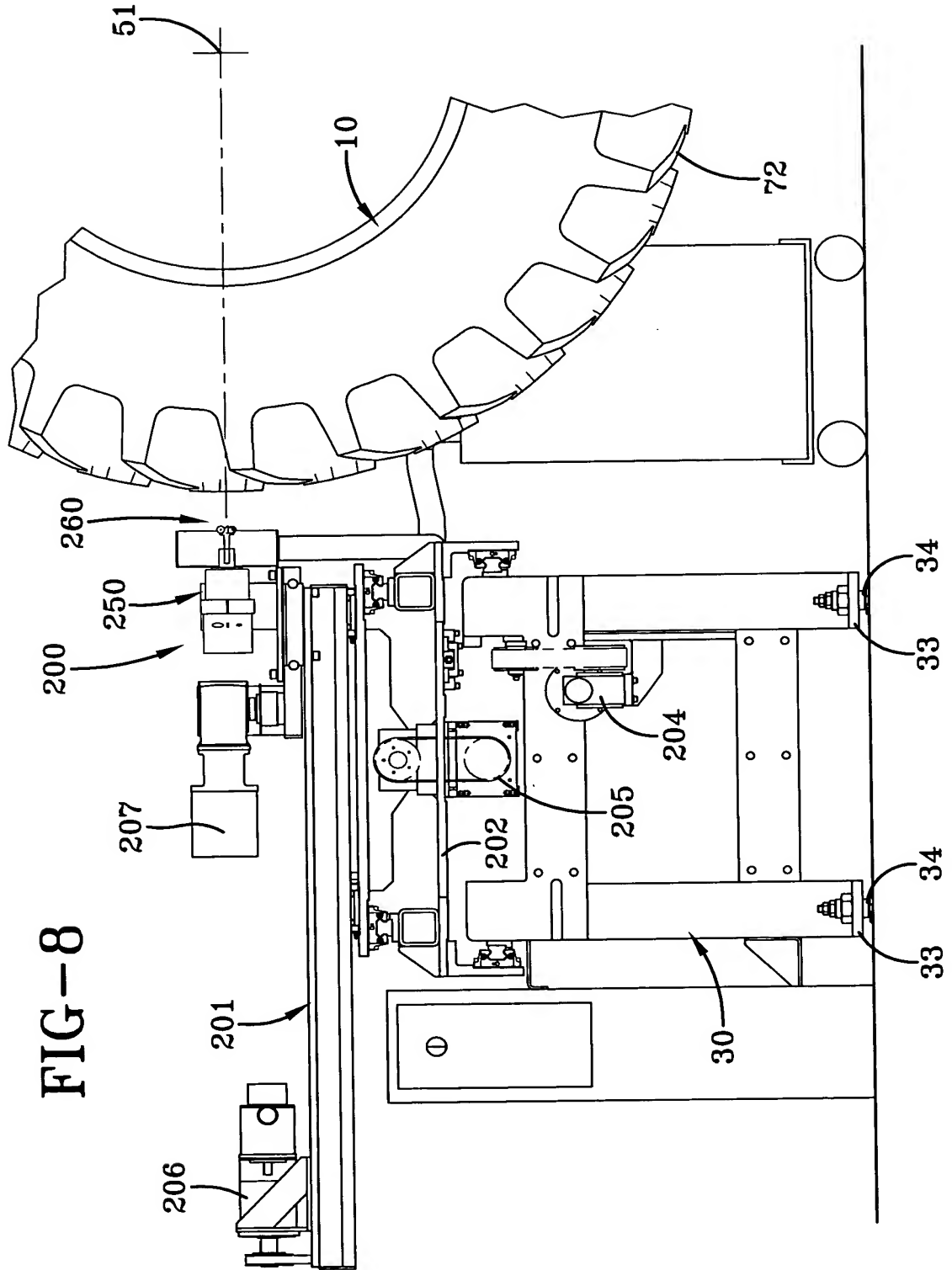


FIG-7

FIG-8



7/22

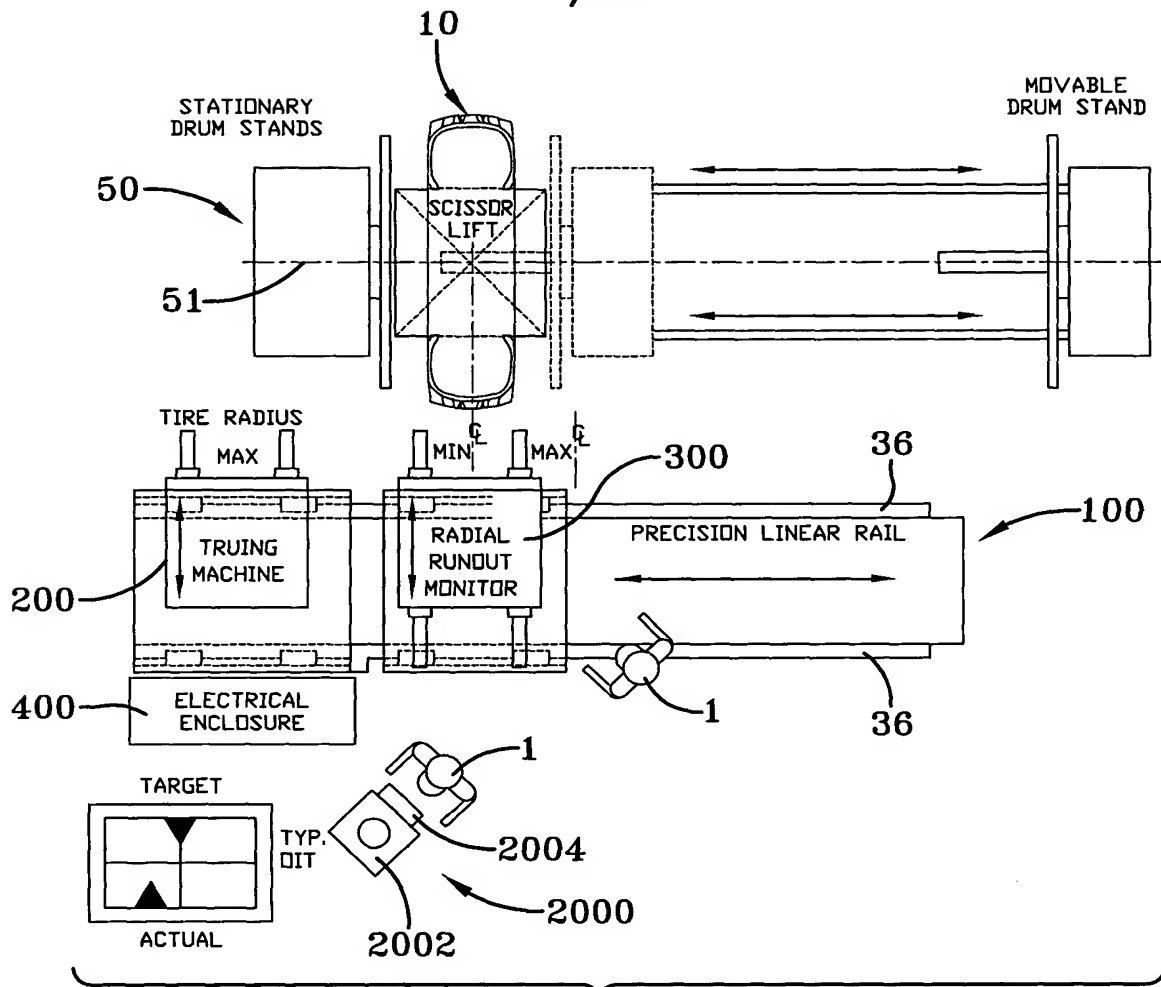


FIG-9

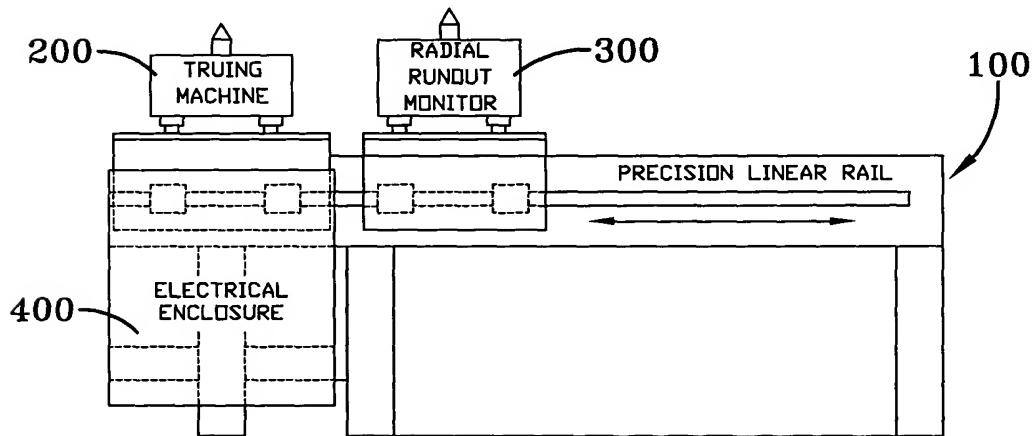


FIG-10

8/22

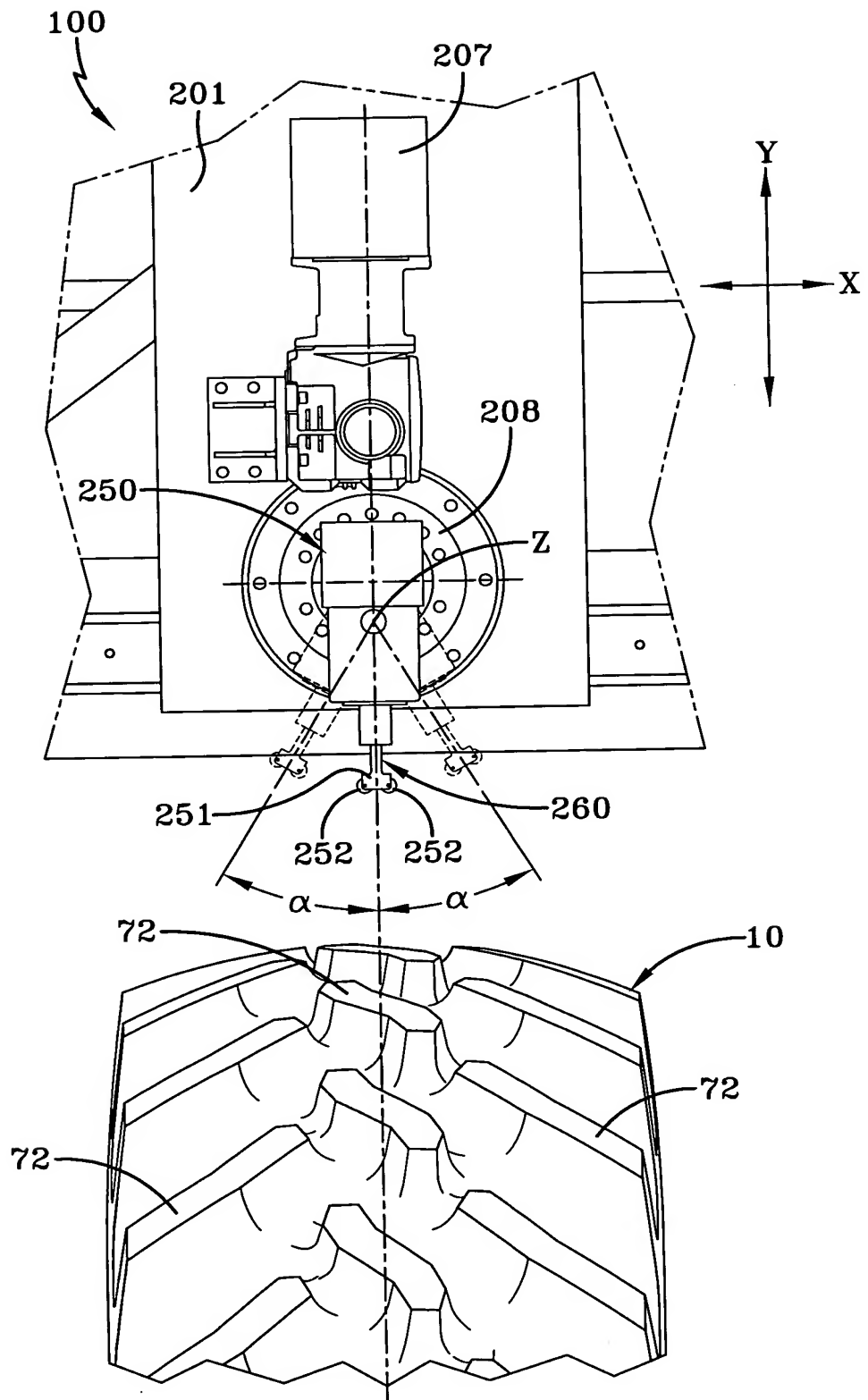


FIG-11

9/22

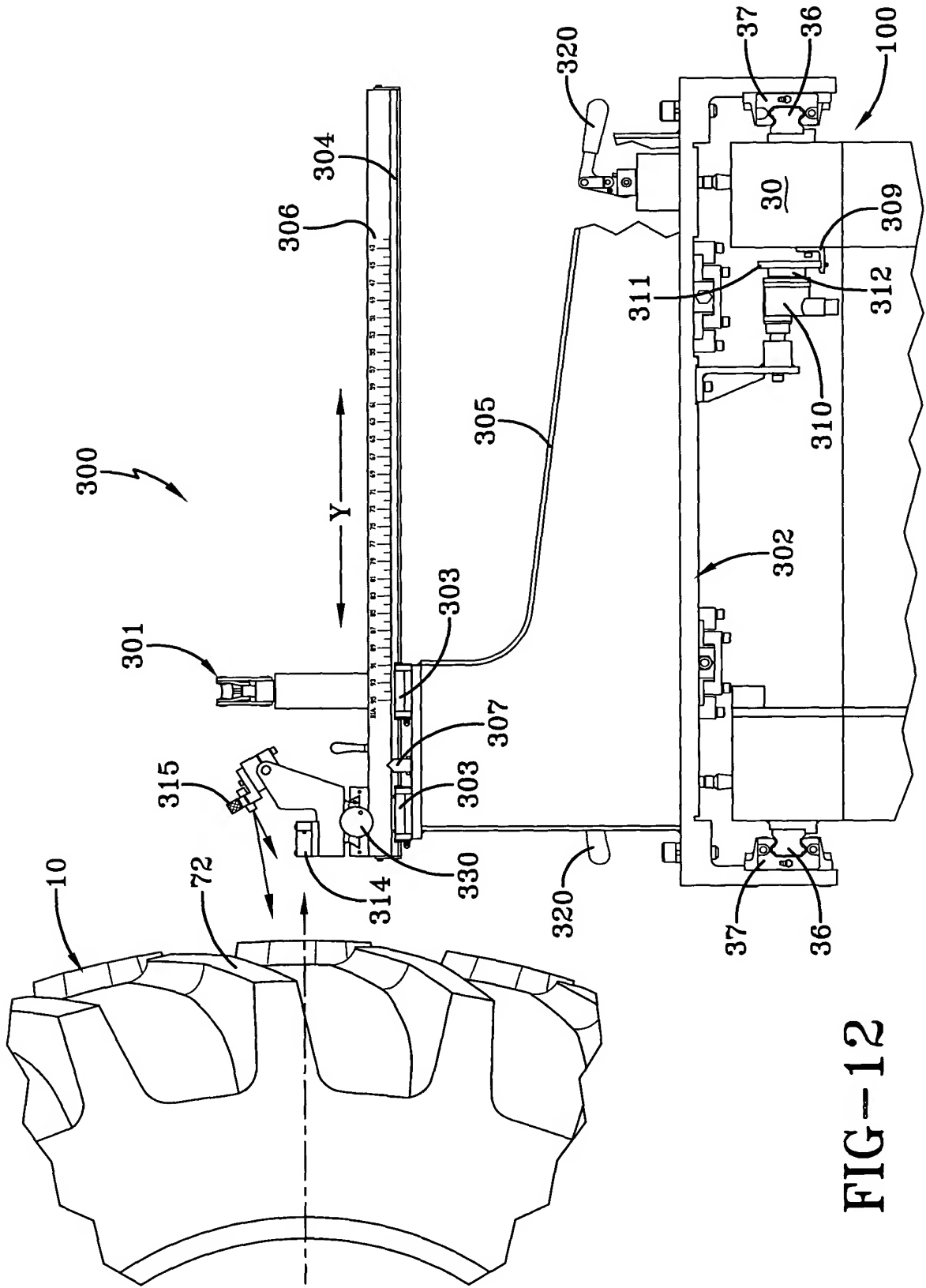


FIG-12

FIG-13A

VERTICAL DISPLACEMENT AT 32 Km/h

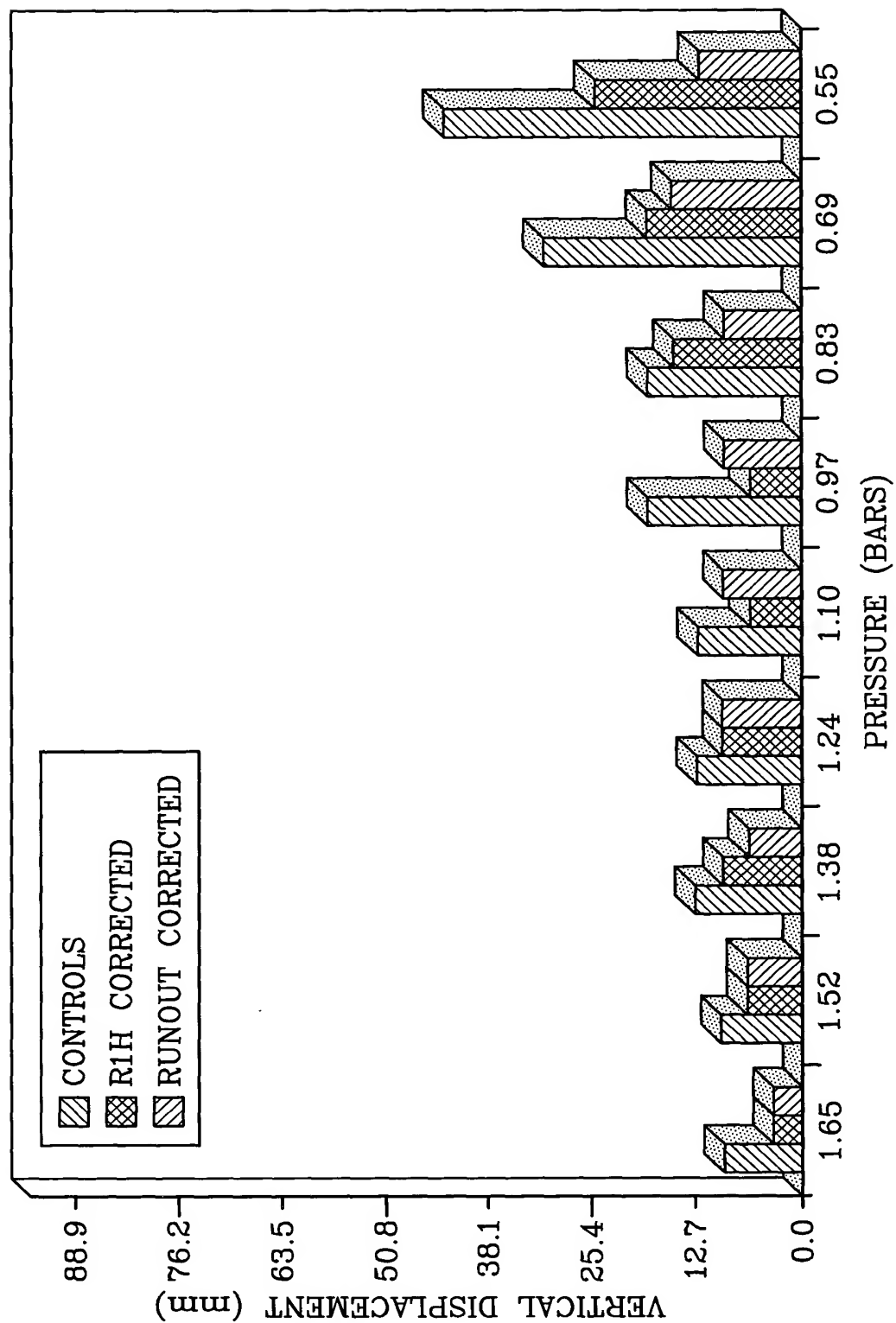


FIG-13B

VERTICAL DISPLACEMENT AT 35 Km/h

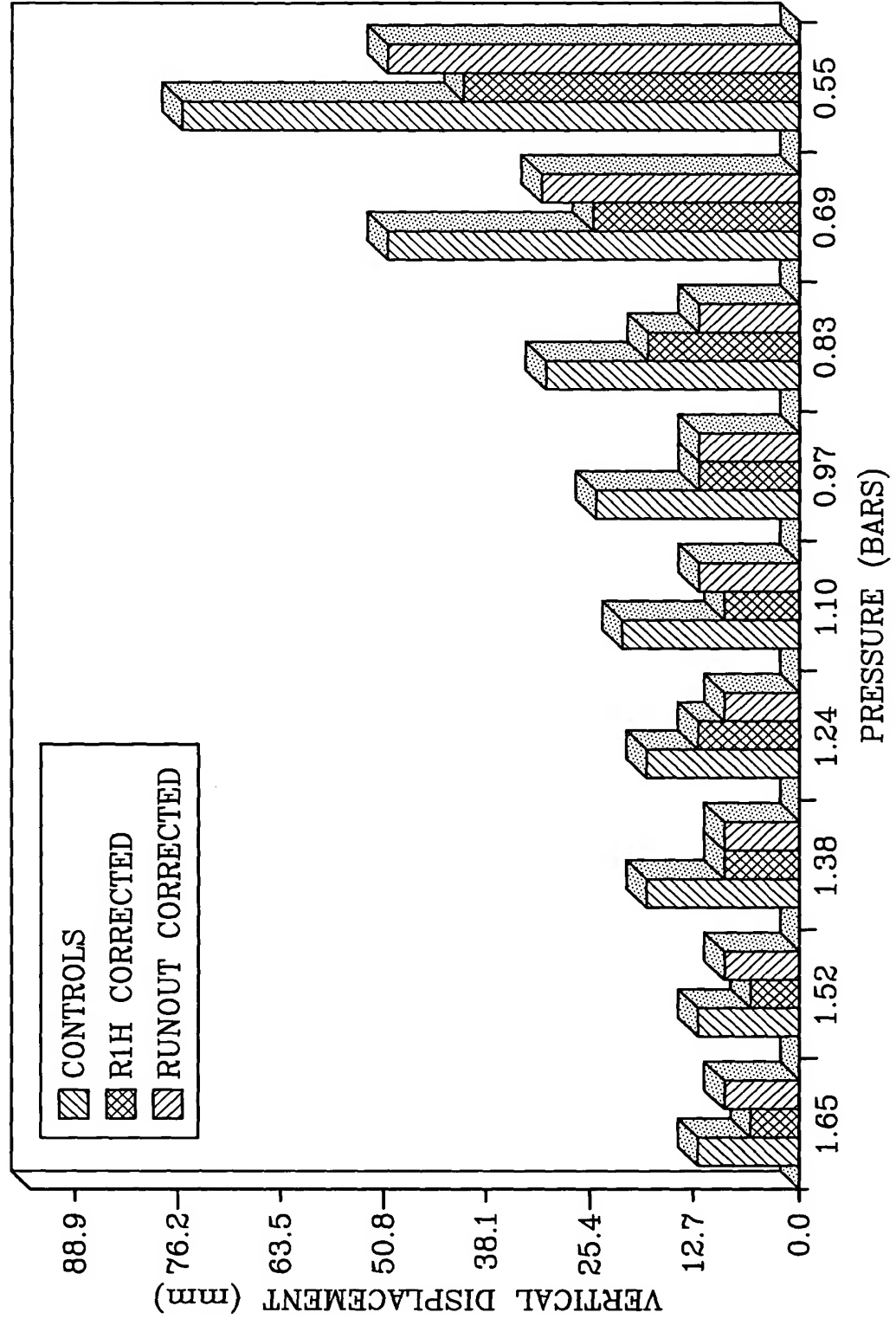
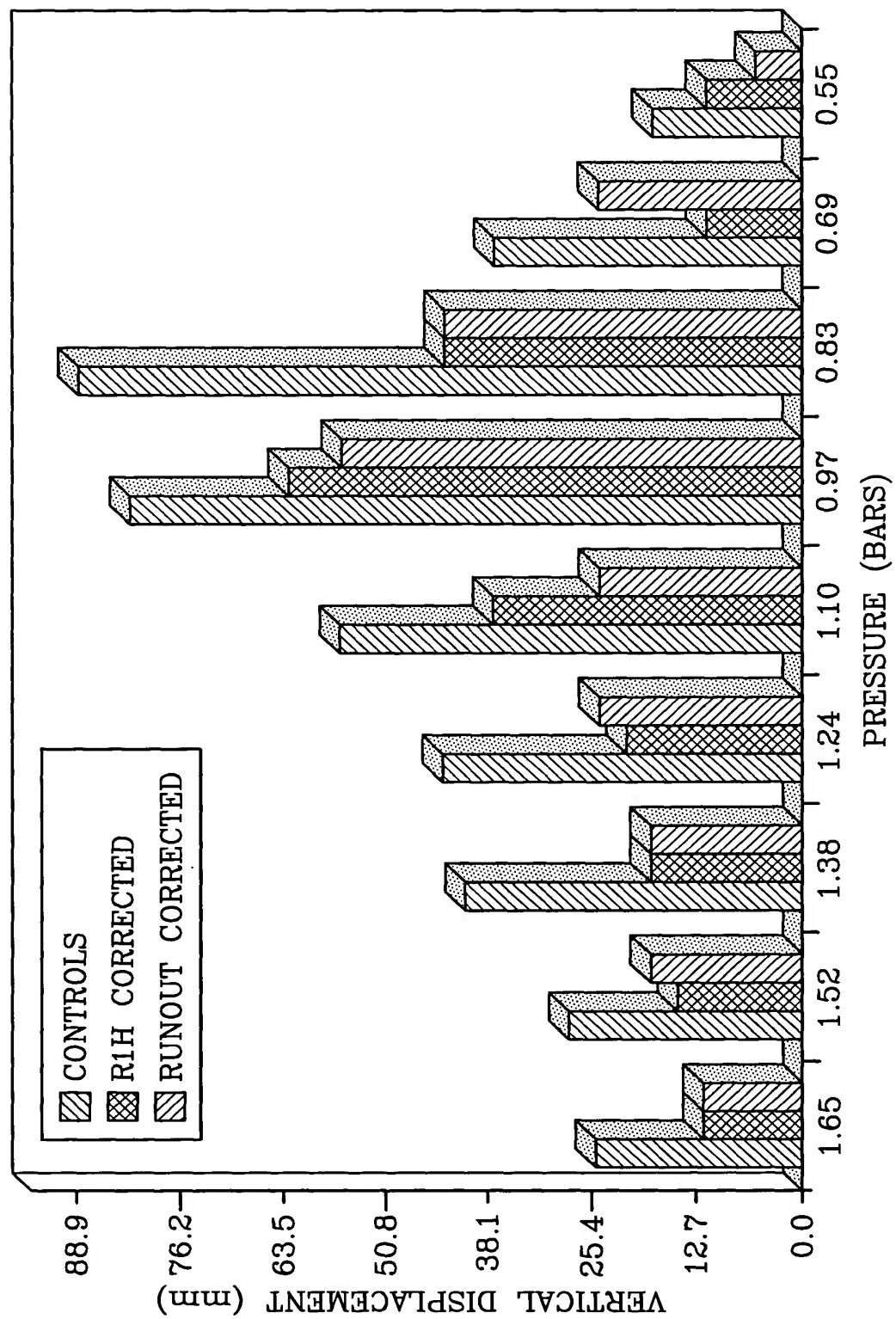


FIG-13C

VERTICAL DISPLACEMENT AT 42 Km/h



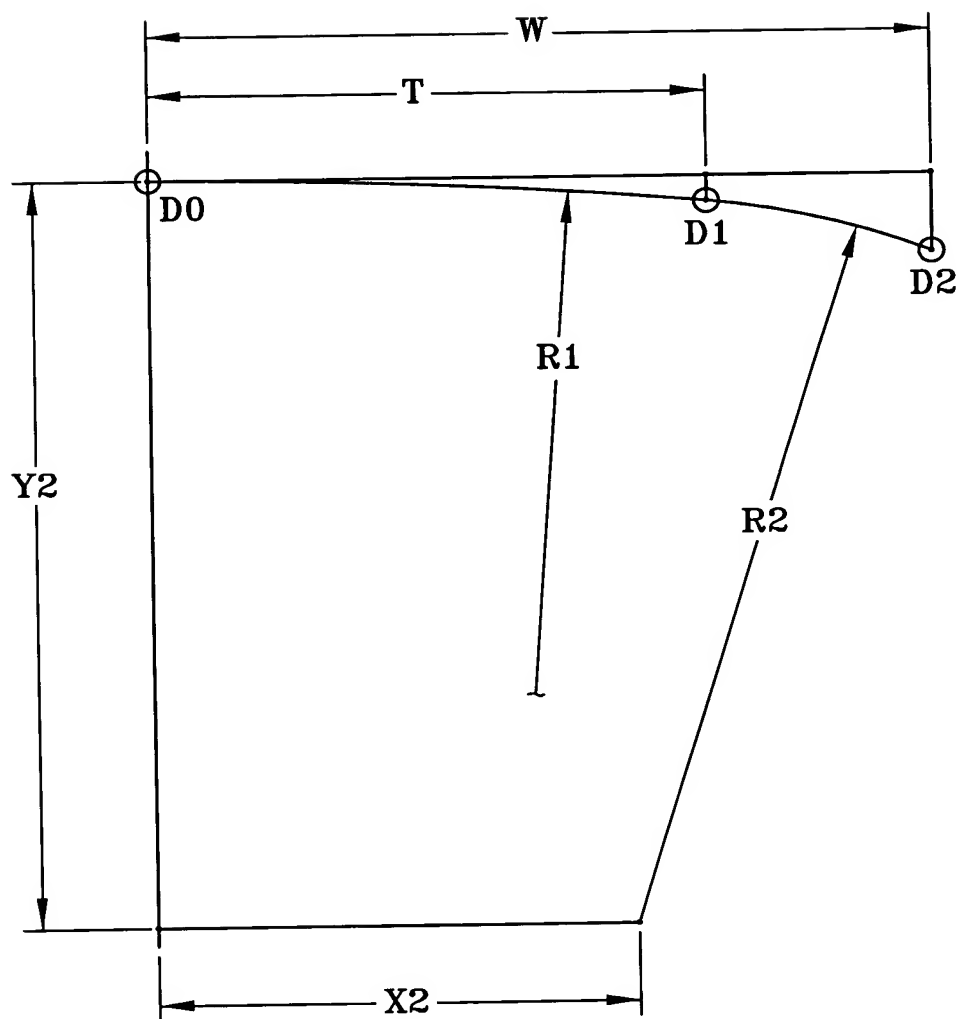


FIG-14

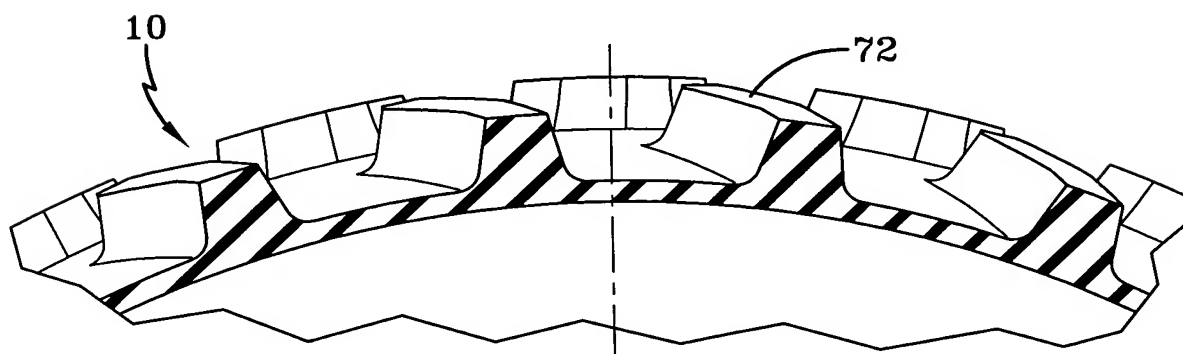
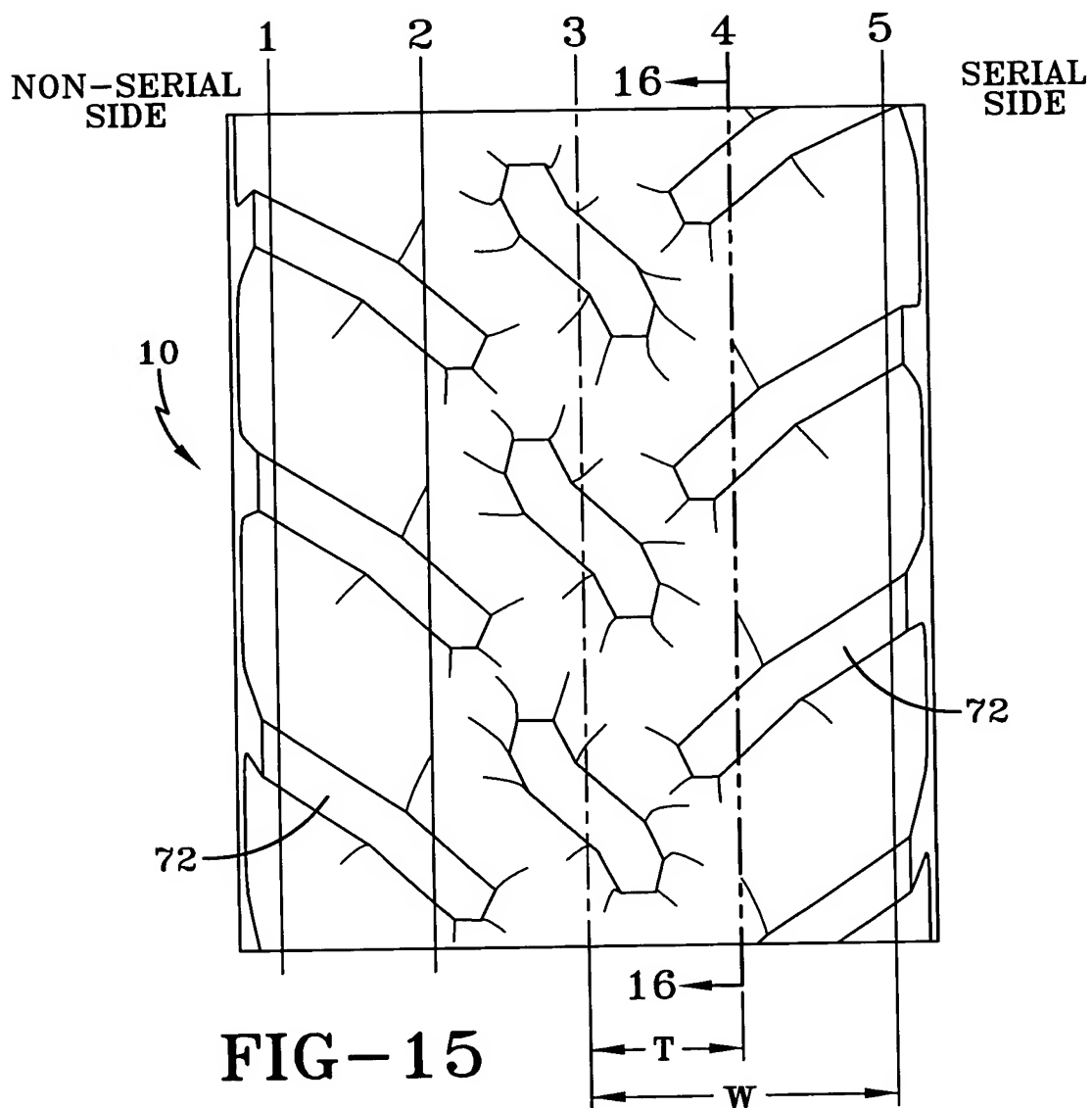


FIG-16

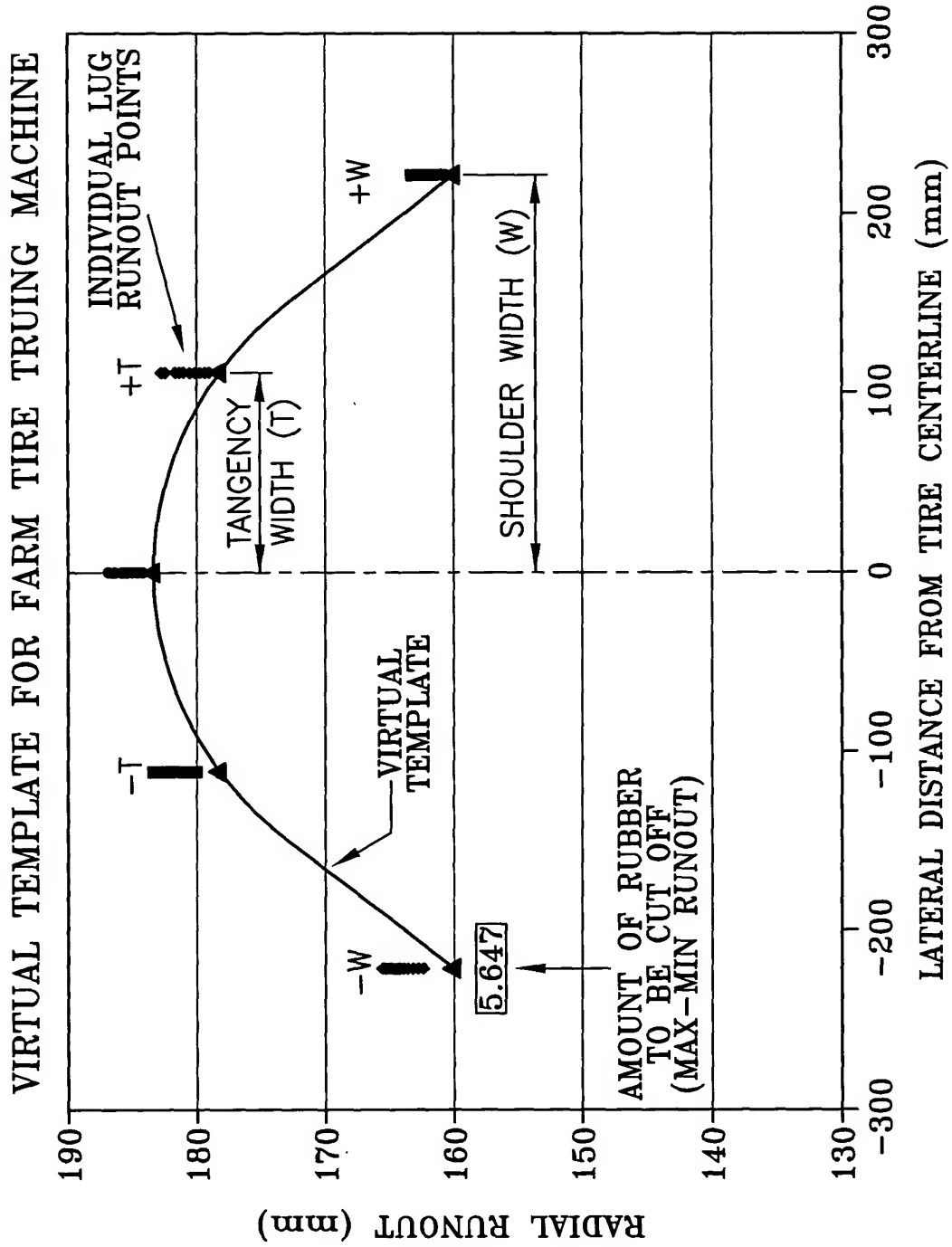


FIG-17

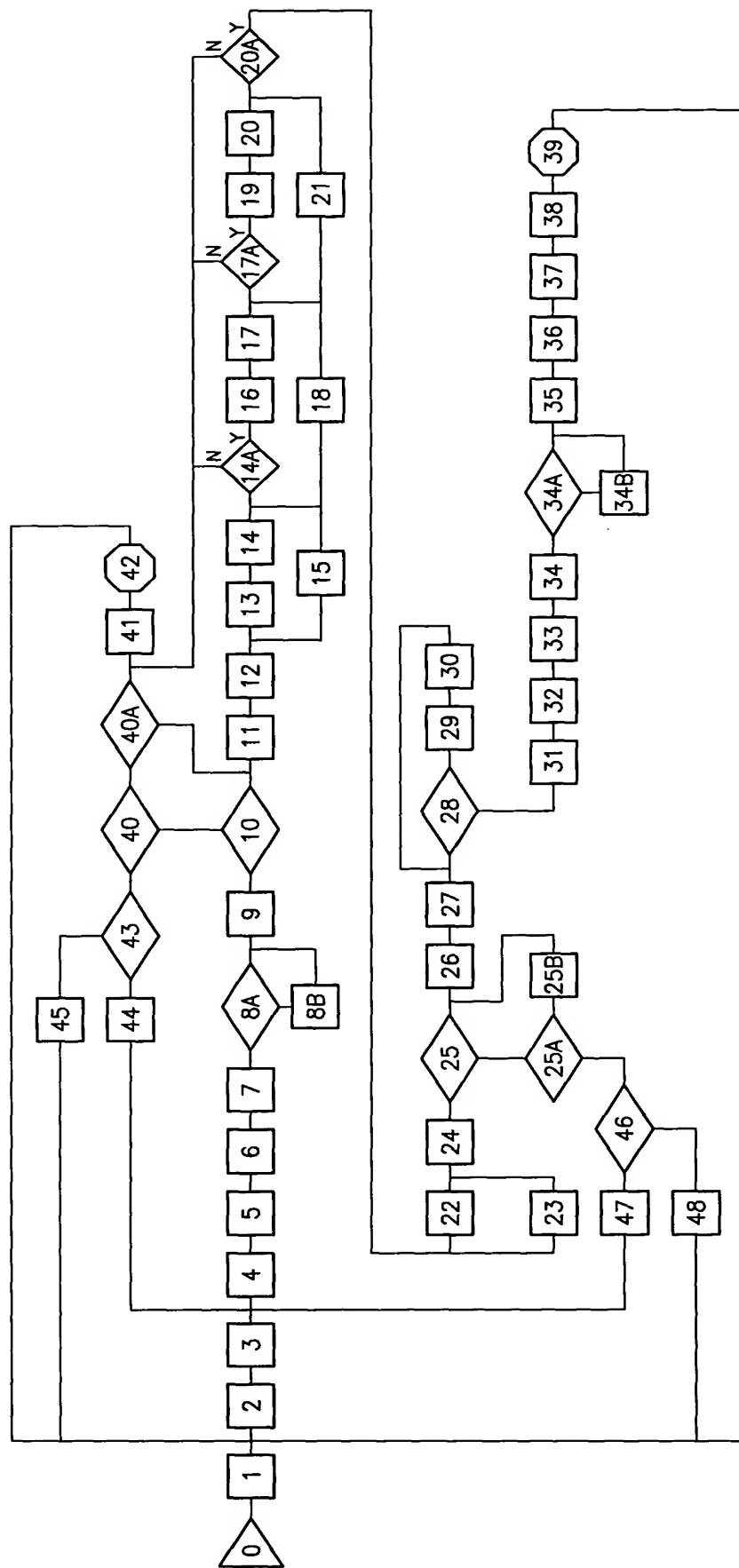


FIG-18

17/22

- 0- START UP
- 1- HOME MACHINE ELEMENTS OPERATOR PRESS HOME AXES BUTTON.
- 2- LOCATE TIRE, RAISE ON LIFT, AND CHUCK TIRE.
- 3- ENTER PROCESS DATA INTO COMPUTER.
- 4- MOVE LASER TO MOLD SPLIT LINE, ADJUST W/VERNIER, PRESS BUTTON TO LOCK DOWN CARRIAGE.
- 5- ADJUST LASER Y-AXIS INTO POSITION FOR NEXT SIZE DIAMETER TIRE.
- 6- ROTATE TIRE SO LASER IS JUST BEFORE 1ST LUG AND RESET DRUM ENCODER TO 0-DEGREES.
- 7- PRESS TAKE RUNOUT MEASUREMENT PB, TIRE ROTATES AND MACHINE COLLECTS DATA.
- 8A- IS MOLD SPLIT AT CENTERLINE (NO/YES).
- 8B- MOVE CARRIAGE TO CORRECT POSITION.
- 9- DO THE FOLLOWING CALCULATIONS ON DATA
 - 1) FIND THE # OF LUGS
 - 2) LUG AVERAGING ROUTINE (1. VALUE/LUG)
 - 3) FIND LOW LUG VALUE, HIGH LUG
 - 4) MEASURE RUN-OUT AND VERIFY
 - 5) FLAT SPOT CHECKING
 - 6) RADIAL RUN-OUT TEST (5 HARMONICS)
- 10- IS TIRE A TRUING CANDIDATE?
- 11- TURN OFF CL LASER, UNLOCK/MOVE LASER TO RIGHT-TANGENT PT., PRESS BUTTON TO LOCK DOWN CARRIAGE.
- 12- PRESS TAKE RUNOUT MEASUREMENT PB, TIRE ROTATES AND MACHINE COLLECTS DATA.

FIG-19A

18/22

- 13– UNLOCK/MOVE LASER TO RIGHT–SHOULDER PT.,
PRESS BUTTON TO LOCK DOWN CARRIAGE.
- 14– PRESS TAKE RUNOUT MEASUREMENT PB, TIRE
ROTATES AND MACHINE COLLECTS DATA.
- 14A– CONTINUE (NO/YES)
- 15– DO CALCULATIONS ON RIGHT–TANGENT DATA
 - 1) FIND THE # OF LUGS
 - 2) LUG AVERAGING ROUTINE (1 VALUE/LUG)
 - 3) FIND LOW LUG VALUE
 - 4) MEASURE RUN–OUT AND VERIFY
 - 5) FLAT SPOT CHECKING
- 16– UNLOCK/MOVE LASER TO LEFT–TANGENT PT.,
PRESS BUTTON TO LOCK DOWN CARRIAGE.
- 17A– CONTINUE (NO/YES)
- 17– PRESS TAKE RUNOUT MEASUREMENT PB, TIRE
ROTATES AND MACHINE COLLECTS DATA.
- 18– DO CALCULATIONS ON RIGHT–SHOULDER DATA
 - 1) FIND THE # OF LUGS
 - 2) LUG AVERAGING ROUTINE (1 VALUE/LUG)
 - 3) FIND LOW LUG VALUE
 - 4) MEASURE RUN–OUT AND VERIFY
 - 5) FLAT SPOT CHECKING
- 19– UNLOCK/MOVE LASER TO LEFT–SHOULDER PT.,
PRESS BUTTON TO LOCK DOWN CARRIAGE.
- 20– PRESS TAKE RUNOUT MEASUREMENT PB, TIRE
ROTATES AND MACHINE COLLECTS DATA.
- 20A– CONTINUE (NO/YES)

FIG–19B

19/22

- 21– DO CALCULATIONS ON LEFT-TANGENT DATA
 - 1) FIND THE # OF LUGS
 - 2) LUG AVERAGING ROUTINE (1 VALUE/LUG)
 - 3) FIND LOW LUG VALUE
 - 4) MEASURE RUN-OUT AND VERIFY
 - 5) FLAT SPOT CHECKING
- 22– MOVE LASER BACK AND OUT TO HOME SAFE POSITION.
- 23– DO CALCULATIONS ON LEFT-SHOULDER DATA
 - 1) FIND THE # OF LUGS
 - 2) LUG AVERAGING ROUTINE (1 VALUE/LUG)
 - 3) FIND LOW LUG VALUE
 - 4) MEASURE RUN-OUT AND VERIFY
 - 5) FLAT SPOT CHECKING
- 24– DO THE FOLLOWING CALCULATIONS
 - 1) CREATE THE VIRTUAL TEMPLATE
 - 2) CONICITY CHECK
 - 3) FIND TIR
- 25– IS TIRE A CANDIDATE FOR TRUING? (NO/YES).
- 25A– OVERRIDE TO MAKE 2 CUTS (NO/YES).
- 25B– ADJUST VIRTUAL TEMPLATE.
- 26– MOVE THE TRUER CARRIAGE TO MOLD SPLIT LINE AND LOCK.
- 27– TRUER WILL MAKE FIRST PASS AND CUT TO VIRTUAL TEMPLATE.
- 28– WANT TO MAKE ANOTHER PASS? (NO/YES).
- 29– ENTER THE DEPTH OF THE FOLLOWING CUT AND PRESS
BUTTON TO INITIALIZE CYCLE.
- 30– TRUER WILL MAKE PASS AND CUT TO ADJUSTED PROFILE.

FIG-19C

20/22

- 31– UNLOCK THE TRUER STAND AND MOVE IT BACK TO THE HOME POSITION.
- 32– MOVE LASER TO MOLD SPLIT LINE, ADJUST W/VERNIER, PRESS BUTTON TO LOCK DOWN CARRIAGE.
- 33– ADJUST LASER Y–AXIS INTO POSITION FOR NEXT SIZE DIAMETER TIRE.
- 34– PRESS BUTTON TO ASSIGN LASER HOME, RESET LASER ENCODER.
- 34A– IS MOLD SPLIT AT CENTERLINE.
- 34B– MOVE CARRIAGE TO CORRECT POSITION.
- 35– PRESS TAKE RUNOUT MEASUREMENT PB, TIRE ROTATES AND MACHINE COLLECTS DATA.
- 36– DO THE FOLLOWING CALCULATIONS ON DATA
 - 1) FIND THE # OF LUGS
 - 2) LUG AVERAGING ROUTINE (1 VALUE/LUG)
 - 3) FIND LOW LUG VALUE, HIGH LUG
 - 4) MEASURE RUN–OUT AND VERIFY
 - 5) RADIAL RUN–OUT TEST (5 HARMONICS)
- 37– MOVE LASER BACK AND OUT TO HOME SAFE POSITION
- 38– PLACE PROPER MARKINGS ON THE TIRE THEN UN–CHUCK THE TIRE
- 39– MOVE THE TIRE TO THE PROPER LOCATION FOR DISTRIBUTION THEN CONTINUE
- 40– DOES THE TIRE PASS AND NOT NEED TRUING? (NO/YES)
- 40A– OVERRIDE FORCE TRUING ON A TIRE THAT PASSES WITHOUT TRUING? (NO/YES)
- 41– PLACE PROPER MARKINGS ON THE TIRE THEN UN–CHUCK THE TIRE

FIG–19D

21/22

- 42– MOVE THE TIRE TO THE PROPER LOCATION
FOR DISTRIBUTION THEN CONTINUE
- 43– DO YOU WANT TO RE–CHUCK THE TIRE? (NO/YES)
- 44– MOVE LASER BACK TO THE HOME POSITION
AND RE–CHUCK THE TIRE
- 45– DISCARD TIRE APPROPRIATELY AND LOCATE NEW TIRE
- 46– DO YOU WANT TO RE–CHUCK THE TIRE? (NO/YES)
- 47– MOVE LASER BACK TO THE HOME POSITION
AND RE–CHUCK THE TIRE
- 48– DISCARD TIRE APPROPRIATELY AND LOCATE NEW TIRE

FIG–19E

